Bruce H. Grahn, Cheryl L. Cullen

History and clinical signs

A 1-year-old, male basenji was referred to the ophthalmology service at the Western College of Veterinary Medicine. The anterior segments of both eyes were similar; a photograph of the anterior segment of the right eye is provided for your assessment (Figure 1). The menace responses and the palpebral, oculocephalic, and direct and consensual pupillary light reflexes were present in both eyes. Schirmer tear test (Schirmer Tear Test Strips; Alcon Canada, Mississauga, Ontario) values were within normal reference ranges in both eyes. The intraocular pressures were estimated with an applanation tonometer (Tonopen XL; Biorad Ophthalmic Division, Santa Clara, California, USA) and they were within the low normal reference ranges. The pupils were dilated with tropicamide (Mydriacyl; Alcon Canada). Biomicroscopic (Osram 64222; Carl Zeiss Canada, Don Mills, Ontario) examination was completed and the pigmented strands were attached to the anterior lens capsules of both eyes. Indirect ophthalmoscopy (Heine Omega 200; Heine Instruments Canada, Kitchener, Ontario) was completed and no additional abnormalities were detected in the posterior segment of either eye.

What is your diagnosis, and what is the etiology and pathogenesis of this condition?

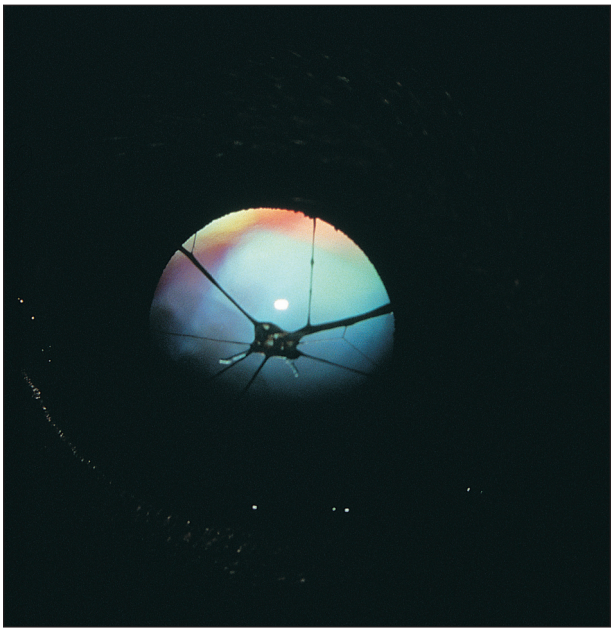

Figure 1. Photograph of the right eye of a 1-year-old male basenji dog after pharmacologic pupillary dilatation.

Discussion

Our diagnosis is iris to lens persistent pupillary membranes (PPMs). Persistent pupillary membranes are congenital anomalies in animals and are inherited in some breeds of dogs, including the basenji (1,2). They arise from the iris collarette and extend to other parts of the iris, lens capsule, or cornea (1). The differential diagnoses include iris atrophy, or anterior or posterior synechiae. Iris atrophy is differentiated from PPMs by the appearance, history, and age of the dog at the time of diagnosis. Iris atrophy is an acquired condition. The age of onset is usually middle age to older, and the iris strands with atrophy do not attach to the corneal endothelial surface or the lens capsule. Anterior and posterior synechiae are differentiated from PPMs by their appearance. Synechiae involve larger sections of iris, usually at the pupillary margin, which are attached to the anterior lens capsule or the corneal endothelial surface. Synechiae are common sequelae to uveitis.

Persistent pupillary membranes are congenital; the pathogenesis involves an incomplete regression of the perilenticular vasculature (pupillary membranes and tunica vasculosa lentis membranes) (1). Remnants of pupillary membranes are normal in puppies. They spontaneously regress as the animal matures; the diagnosis is confirmed by biomicroscopic examination. Persistent pupillary membranes are typically incidental findings and, usually, they do not interfere with vision, unless they are extensive and associated with large central lens capsular opacities or corneal opacities. Dogs known to have inherited PPMs should not be bred, and all breeding dogs should have a current Canine Eye Registration Foundation certificate before breeding.

References

1. Collins KB, Moore CP. Diseases and surgery of the canine anterior uvea. In: Gelatt KN, ed. Veterinary Ophthalmology, 3rd ed. Philadelphia: Lippincott, Williams & Wilkins, 1999:755–795.
2. Rubin LF. Inherited Eye Diseases in Purebred Dogs. Baltimore: Williams & Wilkins, 1989.

Department of Small Animal Clinical Sciences, Western College of Veterinary Medicine, University of Saskatchewan, 52 Campus Drive, Saskatoon, Saskatchewan. S7N 5B4 (Grahn); Department of Companion Animals, Atlantic Veterinary College, University of Prince Edward Island, 550 University Avenue, Charlottetown, Prince Edward Island C1A 4P3 (Cullen).